

ABSTRACT

Sensors for determining the presence and concentration of bio-
molecules in a biological sample are provided in the form of polymer brushes,
which comprise a substrate having a surface modified with a hydrophobic
5 polymer segment, attached to which is a water-dispersible or water-soluble
polymer segment having functional groups that bind probes. The method of
synthesis of such sensors preferably includes use of controlled free radical
polymerization techniques, which allows for controlled architecture polymers
to modify the surface of the substrate, and the use of monomers possessing
10 functional groups which do not require activation prior to probe attachment. In
this manner functional groups in the polymer chain are removed from the
surface, which allows for solution chemistry to be more realistically
reproduced with the benefits of a solid bound probe.